

TiC-BASED COATINGS DEPOSITION USING ELECTRIC DISCHARGED PLASMA

*ILYAS RAHMATULLIN, ALEXANDER SIVKOV, ALEXANDER IVASHUTENKO,
DMITRIY GERASIMOV AND YULIYA SHANENKOVA*

*National Research Tomsk Polytechnic University, Russia
riam@tpu.ru*

The aim of this work was to research the possibility of using coaxial magneto plasma accelerator for TiC-coatings deposition on steel substrates. As a result, coatings with 0.01 m² area was deposited. They were researched using XRD, SEM and nanohardness on cross section of coating was measured. The influence of energy and carbon load on phase content, average hardness and microstructure is shown. It is established that the finest microstructure and average nanohardness is 15.3 GPa are achieved at energy $W = 46.7$ kJ and carbon load 2.0 g.

Keywords: *Arc discharge, High speed plasma flow, Titanium carbide, Coating deposition.*